

**WHAT IS CLAIMED IS:**

1. A system for manufacturing semiconductor integrated circuit (IC) devices, the system comprising:  
an operating control system;  
a process intermediate station in communication with the operating control system; and  
a gas purge device, wherein the gas purge device is included in the process intermediate station.
2. The system of claim 1 wherein the operating control system is a material control system (MCS).
3. The system of claim 1 further comprising a manufacturing execution system (MES) connected to the operating control system.
4. The system of claim 3 wherein the MES comprises an operation job supervisor (OJS).
5. The system of claim 3 wherein the MES comprises a dispatcher.
6. The system of claim 1 wherein the process intermediate station is a stocker.
7. The system of claim 1 wherein the process intermediate station is an overhead buffer (OHB).
8. The system of claim 1 wherein the process intermediate station is a loadlock included in a cluster process tool.
9. The system of claim 1 wherein the process intermediate station is a transfer chamber in a cluster process tool.

10. The system of claim 1 wherein the gas purge device uses nitrogen as purging gas.
11. A system for manufacturing semiconductor IC devices, the system comprising:  
a operating control system;  
a plurality of process intermediate stations each in communication with the operating control system; and  
at least one gas purge device included in at least one of the plurality of process intermediate stations.
12. The system of claim 11 further comprising a manufacturing execution system (MES) connected to the operating control system.
13. The system of claim 11 wherein the MES includes a dispatcher.
14. The system of claim 13 wherein the dispatcher includes dispatching rules for dispatching a workpiece among processing equipment.
15. The system of claim 14 wherein dispatching the working piece includes dispatching the workpiece among the plurality of process intermediate stations.
16. A method for automatic nitrogen purge processing in manufacturing semiconductor IC devices, comprising:  
transferring, via an operating control system, a workpiece to a process intermediate station having a gas purge station;  
performing gas purging of the workpiece; and  
transferring, via the operating control system, the workpiece to a next process.
17. The method of claim 16 wherein the operating control system is a manufacturing execution system (MES) configured to control transfer of the workpiece to the process intermediate station and the next process.

18. The method of claim 16 wherein the operating control system includes a material control system (MCS) configured to control transfer of the workpiece to the process intermediate station and the next process.

19. The method of claim 16 wherein the workpiece is a lot including a plurality of wafers.

20. The method of claim 16 wherein the workpiece has at least one wafer included in a front opening unified pod (FOUP).

21. The method of claim 16 wherein the gas purging is performed in a stocker.

22. The method of claim 16 wherein the gas purging is performed in an overhead buffer (OHB).

23. The method of claim 16 wherein the gas purging is performed in a loadlock of a process tool.

24. The method of claim 16 wherein the gas purging is performed in a transfer chamber of a process tool.

25. The method of claim 16 further comprising selecting a gas purge station to perform the gas purging is based on an optimized gas purge queue time.

26. The method of claim 16 further comprising updating a tag ID after gas purging is performed.

27. The method of claim 16 further comprising performing gas re-purging if a shelf time after the nitrogen purging is longer than a pre-determined time.

28. The method of claim 16 further comprising raising a flag for hold if the workpiece has no tag information available.

29. The method of claim 16 wherein the gas purging comprises nitrogen purging.